REMARKS

With this Response, Applicants amend no claims and cancel no claims. Thus, claims 1 and 3 remain pending in the application.

As a preliminary matter, Applicants thank the Examiner for granting the Request for Continued Examination and entering the submission filed on September 29, 2009.

Response to new ground of rejection under 35 U.S.C. § 103(a)

The Office Action rejects claims 1 and 3 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kikuchi et al. (Key Engineering Materials, 2004, Vols. 254-256, pp. 561-564), hereinafter "Kikuchi." The Office Action asserts that "Kikuchi clearly discloses using freezing temperature to control the pore size of the fibrous apatite/collagen composition, which is the same conclusion from Fig. 3 of the instant application." The Office Action admits that Kikuchi "is silent on charting solidification time, Sb, vs. average pore diameter, D_{AV} and freezing-environment temperature, T_0, vs. solidification time," however, the Office concludes that a person of ordinary skill in the art would have utilized "the solidification time and freezing-environment temperature chart to control pore size" (see Office Action, page 3, paragraphs 1-3).

Applicants respectfully traverse the rejection. Applicants note that Kikuchi does not disclose any relationship between solidification time vs. pore size. While Kikuchi recognizes that the "mean pore size was increased with increasing freezing temperature," Kikuchi does not actually measure the solidification time of the samples and consequently, Kikuchi would not allow one to draw conclusions between solidification time and average pore diameter as well as solidification time and freezing-environment temperature, T_0.

Applicants point out that the advantage to utilize as an intermediate parameter the "solidification time" can be seen especially in Example 2 of the present specification, where no direct relation exist between average pore diameter and solidification time and the relation between the solidification time and the freezing-environment temperature, and the resulting curves in Figures 6 and 8 are not linear. In this case, it is not possible to determine the freezing-environment temperature accurately from the targeted average pore diameter (in contrast to Examples 1 of the present application, shown in Figures 4 and 8, where a direct relationship between said parameters exists). Applicants note that in the field of endeavor of freezing a gel from a porous body by rapid cooling, even if the freezing-environment temperature may be the same, the average pore diameter and the solidification time are varied depending on the volume, the moisture percentage and other factors of the object to be frozen. Accordingly, changes in the average pore diameter are depending on changes in various factors and their interrelationships, and therefore, the average pore diameter cannot be algebraically determined from the freezing-environment temperature. If the average pore diameter of materials as demonstrated in Example 2 would be directly determined from the freezing-environment temperature only, fluctuation of the calculated value from the experimental value would inevitably occur. To obtain more accurate calibration, often more than three data are taken to get a more accurate calibration, which results sometimes in a curved calibration line.

Applicants note that the presently claimed invention utilizes a graph showing the relation between the average pore diameter and the solidification time as a calibration source. It is experimentally found that the value calculated by the method utilizing the solidification time as an intermediate parameter is very close to the experimental value. This could be explained by the fact that the average pore diameter is mainly directly correlated with the solidification time,

and thus less data fluctuation occurs between the average pore diameter and solidification time. Accordingly, it can be concluded that the method of the presently claimed invention, by indirectly determining the freezing-environment temperature from the average pore diameter with the aid of the parameter "solidification time" is more accurate than the direct method disclosed in Kikuchi.

Applicants note that there is nothing in Kikuchi that suggests that "the Sb is a convenient indicator for the completion of solidifying treatment," as asserted in the Office Action, page 3, lines 9-10. Kikuchi does not teach or suggest that the freezing-environment temperature is determined from the average pore diameter with the aid of the parameter "solidification time," to obtain more accurate data. Such conclusion cannot be made based on the disclosure in Kikuchi and appears to be hindsight.

In view of the foregoing remarks, withdrawal of the obviousness rejection of claims 1 and 3 over Kikuchi is appropriate and is respectfully requested.

CONCLUSION

In view of the foregoing, it is believed that all the claims in this application are in condition for allowance, which action is respectfully requested. If any issues yet remain which can be resolved by a telephone conference, the Examiner is respectfully invited to contact the undersigned at the telephone number below.

Respectfully Submitted,
Daisuke SHOJI et al.

Bruce H. Bernstein
Reg. No. 29,027

Stephen M. Roylance
Reg. No. 31,296

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GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191